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| 09/926,213 | 09/25/2001 | Shoji Nakayama | 213896US2 | 8484 |

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EXAMINER

ZIMMERMAN, GLENN

ART UNIT PAPER NUMBER

2879

DATE MAILED: 05/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/926,213

Applicant(s)

NAKAYAMA ET AL.

Examiner

Glenn Zimmerman

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4,6,8-16,37 and 39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,6,8-16,37 and 39 is/are rejected.
- 7) ☒ Claim(s) 37 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 0404.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

Amendment, filed on April 7, 2004, has been entered and acknowledged by the examiner.

Claim Objections

Claim 37 is objected to because of the following informalities: In claim 10 line 4, the examiner suggests replacing "face plate" with - - faceplate - -. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3, 4, 6, 8, 15, 16 and 37 are rejected under 35 U.S.C. 102(e) as being anticipated by Kaneko et al. U.S. Patent 6,634,916.

Regarding claim 1, Kaneko et al. discloses a method of manufacturing a flat panel display (**title; Fig. 2**), comprising: depositing a metal back layer (**Fig. 2 ref. 303**) on a faceplate (**face plate ref. 102**) having a phosphor layer (**phosphor layer ref. 302**) formed on a substrate (**col. 34 lines 40-43**) (**face plate fp102**); heating (**bake temperature 300 to 400 C**) the face plate in a vacuum atmosphere of 1×10^{-4} or less to deaerate (**col. 27 lines 53-55**) the face plate (**see Figure 1 bake processing chamber ref. 106 column**); cooling the deaerated face plate in a vacuum atmosphere of 1×10^{-4} Pa or less (**see Figure 1 surface cleaning processing chamber ref. 107 column**); depositing a getter film made of evaporable getter material on the cooled metal back layer on the phosphor layer without exposing the getter film to an oxidizing atmosphere (**first getter processing chamber ref. 108 column and second getter processing chamber ref. 109 column**); and disposing the faceplate thereon the getter film is deposited (**col. 8 lines 44-51; col. 25 lines 50-64**) and a rear plate having an electron source formed on a substrate so as to face to each other to form a gap (**col. 1 line 15; Figure 2 gap no ref. #**) therebetween, and hermetically sealing the gap (**col. 5 lines 39-41**).

Regarding claim 3, Kaneko discloses the method of manufacturing the flat panel display as set forth in claim 1: wherein the getter film is substantially made of Ba (**col. 25 lines 29 and 30**).

Regarding claim 4, Kaneko et al. discloses the method of manufacturing the flat panel display as set forth in claim 1: wherein the metal back layer is substantially made of aluminum (**ref. 302 aluminum anode**).

Regarding claim 6, Kaneko et al. discloses the method of manufacturing the flat panel display as set forth in claim 1, further comprising: preceding hermetically sealing, heating/deaerating the rear plate (**col. 25 lines 45-49**).

Regarding claim 8, Kaneko et al. discloses the method of manufacturing the flat panel display as set forth in claim 1: wherein the respective processes are implemented in a same manufacturing apparatus continuously (**col. 27 line 14**) or simultaneously (**col. 27 lines 21-22**).

Regarding claim 15, Kaneko et al. discloses the method of manufacturing the flat panel display as set forth in claim 1: wherein in the hermetic sealing, a support frame (**outer frame Fig. 2 ref. 103**) is disposed between the faceplate and the rear plate, the gap being hermetically sealed through the support (**sealing material ref. 143 and low melting point adhesive agent frit glass ref. 307**).

Regarding claim 16, Kaneko et al. discloses the method of manufacturing the flat panel display as set forth in claim 15: wherein the support frame and the faceplate are hermetically sealed by indium (**indium sealing material ref. 143**) or an alloy thereof.

Regarding claim 37, Kaneko et al. discloses the method of manufacturing the flat panel display as set forth in claim 1: wherein the getter film is deposited on a region corresponding to the phosphor layer of the face plate (**col. 29 lines 48-49**).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over by Kaneko et al. U.S. Patent 6,634,916 in view of in view of Osamu et al. Japanese Patent Application Publication 08-022785..

Regarding claim 9, Kaneko et al. teaches all the limitations of claim 9, but fails to teach wherein the respective processes are implemented in manufacturing apparatuses independent for the respective processes continuously or simultaneously. Osamu et al. in the analogous art teaches wherein the respective processes are implemented in manufacturing apparatuses independent for the respective processes continuously or simultaneously (**paragraphs 33 and 34**). Additionally, Osamu teaches incorporation of such a device to improve purity of the getter (**paragraph 33**) and improves the suitability for manufacturing (**paragraph 34**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have wherein the respective processes are implemented in manufacturing apparatuses independent for the respective processes continuously or simultaneously in the processing of the image displaying apparatus of Kaneko et al. since such a modification would improve purity of the getter and improves suitability for manufacturing as taught by Osamu et al.

Claims 10-13 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Kaneko et al. U.S. Patent 6,634,916 in view of Ono et al. U.S. Patent 5,936,342.

Regarding claim 10, Kaneko et al. teaches all the limitations of claim 10, but fails to teach wherein the phosphor layer has phosphor dots separated by a black conductive material. Ono et al. in the analogous art teaches wherein the phosphor layer has phosphor dots separated by a black conductive material (**black electroconductive substance and dot-shaped fluorescent bodies Fig. 2B ref. 12 and 13**). Additionally, Ono et al. teaches incorporation of such phosphor dots with black material to improve the flat panel display by providing dots in three colors and a dark electroconductive contrasting framing black electroconductive substance (**col. 8 lines 37-48**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have wherein the phosphor layer has phosphor dots separated by a black conductive material in the front panel of Kaneko et al., since such a modification would improve the flat panel display by providing dots in three colors and a dark electroconductive contrasting framing black electroconductive substance as taught by Ono et al.

Regarding claim 11, Kaneko et al. and Ono et al. teach all the limitations of claim 11, but fails to teach wherein the getter film is mainly deposited on a region corresponding to the black conductive material. Ono et al. in the analogous art teaches wherein the getter film is mainly deposited on a region corresponding to the black conductive material (**col. 7 lines 48-52**). Additionally, Kaneko et al. teaches incorporation of such a selective deposition to improve the display so that electrons may not be absorbed by the gettering substance (**col. 7 lines 50-51**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have wherein the getter film is mainly deposited on a region corresponding to the black conductive material in the front panel of Kaneko et al. and Ono et al., since such a modification would improve the display so that electrons may not be absorbed by the gettering substance as taught by Ono et al.

Regarding claim 12, Ono et al. discloses wherein the getter film is deposited on almost the entire image display region of the faceplate (**black electroconductive substance and dot-shaped fluorescent bodies Fig. 2B ref. 12 and 13; col. 7 lines 48-52**). This claim is rejected for the same reasons found in claims 10 and 11. The examiner notes that almost is a relative term.

Regarding claim 13, Ono et al. discloses wherein the getter film is deposited mainly in a region other than a region where the phosphor layer is formed (**black electroconductive substance and dot-shaped fluorescent bodies Fig. 2B ref. 12 and 13; col. 7 lines 48-52**). This claim is rejected for the same reasons found in claims 10 and 11.

Regarding claim 39, Kaneko teaches all the limitations of claim 39, but fails to teach wherein the metal back layer has a thickness of 2500 nm or less. Ono et al. in the analogous art teaches wherein the metal back layer has a thickness of 2500 nm or less (**col. 17 lines 18-19**). Additionally, Ono et al. teaches incorporation of such a thickness to improve the anodes strength to hold the phosphor and the getter film yet allowing electrons reach the phosphor (**col. 17 lines 18-26**) and provide an improved working thickness for the anode electrode (**col. 6 lines 52-55**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use a metal back layer that has a thickness of 2500nm or less in the display of Kaneko, since such a modification would improve the anodes strength to hold the phosphor and the getter film yet allowing electrons reach the phosphor and provide an improved working thickness for the anode electrode as taught by Ono et al.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over by Kaneko et al. U.S. Patent 6,634,916 in view of Nakatani et al. U.S. Patent 6,008,576.

Regarding claim 14, Kaneko et al. teaches all the limitations of the claim, but fails to teach wherein the getter film has a thickness of 1 micrometer or more. Nakatani et al. in the analogous art teaches wherein the getter film has a thickness of 1 micrometer or more (**col. 14 lines 51-55**). Additionally, Liu teaches incorporation of such a getter thickness film to improve gettering of the flat display (**col. 14 lines 51-67**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use the get thickness of 1 micrometer in the getter layer thickness of Kaneko, since such a modification would improve gettering of the flat display as taught by Nakatani et al.

Response to Arguments

Applicant's arguments with respect to claims 1, 3, 4, 6, 8-16, 37 and 39 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenn Zimmerman whose telephone number is (571) 272-2466. The examiner can normally be reached on M-W 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh D Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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